

immunosorbent assays (ELISA), and examined biopsied mucosa for these bacteria by immunohistochemistry. Only strains of *Fusobacterium varium* (*F. varium*) isolated killed Vero cells. The bacterium lacks verotoxin genes but culture supernatant was found to contain much butyric acid. Twenty-four hours after enemas containing butyric acid or *F. varium* culture supernatants, mice demonstrated colonic ulcers with crypt abscesses, inflammatory cell infiltration and apoptotic changes. Western blotting with *F. varium* showed 19 of 31 (61%) patients to have serum antibodies to the bacterium. In ELISA and immunohistochemistry with *F. varium* proteins an antigen, the mean optical density and the detection rate were higher for our patients than for subjects with Crohn's disease or other controls.

#### Example 2

The susceptibility to *Fusobacterium varium* in antimicrobial agents was examined. As a result, *Fusobacterium varium* was found to be susceptible to the following antimicrobial agents in the order indicated: tetracycline > penicillin > MNZ > imipenem > amoxicillin, cefmetazole, ampicillin, fosfomycin, chloramphenicol. On the other hand, the bacterium was found to be resistant to clarithromycin, erythromycin, streptomycin, kanamycin and gentamycin.

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#### IN THE CLAIMS

Please cancel Claim 14, without prejudice toward the further prosecution of this claim in a Continuation and/or Divisional Application.

Please add the following new claims:

16. (New) A method for making a diagnosis of ulcerative colitis in a patient, which comprises the steps of:

- (a) obtaining sera from said patient; and  
(b) detecting an antibody against *Fusobacterium varium* in said sera.

17. (New) The method of Claim 16, wherein said antibody is detected using western blotting method.

18. (New) The method of Claim 16, wherein said antibody is detected using enzyme-linked immunosorbent assay (ELISA).

#### SUPPORT FOR THE AMENDMENTS

Applicants have rewritten Claim 14 as new Claim 16. Support for new Claim 16 can be found in the Claim 14, as originally filed, and in the description on page 5, lines 7 to 11, and page 9, lines 2 to 6, of the specification. Applicants have also added new Claims 17 and 18. Support for new Claims 17-18 can be found in the description on page 7, lines 1 to 4, and page 9, lines 2 to 6, of the specification.

No new matter has been added. Claims 1-13 and 15-18 remain pending in this application.

#### REMARKS

The present claims relate to a method for making a diagnosis of ulcerative colitis in a patient, which comprises the steps of:

- (a) obtaining sera from said patient; and  
(b) detecting an antibody against *Fusobacterium varium* in said sera.